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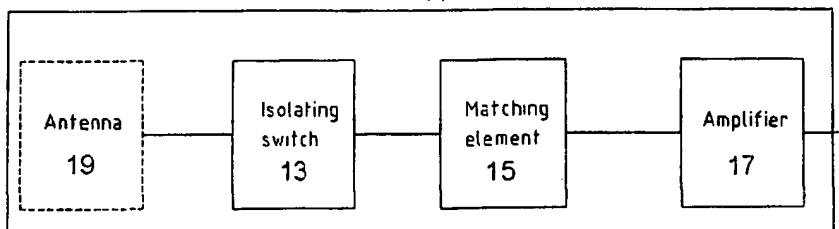
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(54) Title: A RECEIVE SYSTEM FOR HIGH Q ANTENNAS IN NQR AND A METHOD OF DETECTING SUBSTANCES

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(57) Abstract: A receiving system (11) for connection to an antenna arrangement (19) for detecting response signals from a sub-
stance having quadrupolar nuclei excited so as to produce nuclear quadrupole resonance in certain of the quadrupolar nuclei. A
method for receiving a response signal via the antennae arrangement (19) is also described. The receiving system (11) includes an
amplifier (17) to amplify the received response signal from the antenna arrangement (19) for subsequent processing, a matching sec-
tion (15) to match the amplifier (17) to the antenna (19), and an isolating switch (13) to isolate the antenna from the receiving system
(11). The matching section (15) noise matches the receiving system (11) to the antenna (19) during a receiving period to reduce the Q
factor of the antenna without significantly degrading the signal to noise ratio. The isolating switch (13) isolates the receiving system
(11) from the antenna (19) during a transmitting period when an excitation signal is transmitted by the antenna (19) to irradiate the
substance. It also electrically connects the receiving system (11) to the antenna during the receiving period immediately after the
transmitting period.

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